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Effect of Board Structure on Sustainability Disclosure of Listed Building Material Firms in Nigeria

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ABSTRACT

The study examined the effect of board structure on sustainability disclosure of listed building material firms in Nigeria. Board structure was proxy using board shareholding, board independence, board female representation and board meetings while the sustainability disclosure was proxy using sustainability disclosure index. The ex post facto design was adopted and the data for the study was collected from the annual reports and accounts of the 6 building material firms listed under Industrial Goods Sector of the Nigerian Exchange Group as at 31st December 2018 spanning from 2012-2018. OLS Regression Model was used in the data analysis and the results of the study show an insignificant and positive association between board independence, board female representation, board meeting and sustainability disclosures of listed building material firms in Nigeria at 5% significant level. Board shareholding on the hand was found to have an insignificant and negative relationship with sustainability disclosures at 5% level of significance. Thus the study recommends among all that regulators and policy makers should encourage firms' directors that are owners to ensure that their position does not discourage the need for accountability to other shareholders so that sustainability disclosure is improved. Also, the study highlights the need to consider female board of directors when appointing firms board members. There should be policies that require firms to nominate women as board members. Their presence should equally be considered by investors and other stakeholders as female board members favour greater orientation towards stakeholders and social issues by influencing disclosures on sustainability activities.

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KEYWORDS: *Board Characteristics; Sustainability Disclosure; Board Independence; Board Meeting; Board Shareholding*

1. INTRODUCTION

The present reporting framework has been criticized for centering only on financial variables. It lacks model to capture environmental and social issues. Environmental degradation by company's activities and neglect on social welfare of both employees of the companies and public at large has been on the increase (Oshiole, Elamah, Amahalu, 2020), yet the present reporting framework fails to capture company's performance on these issues (Emeka-Nwokeji & Osisioma, 2019). Meanwhile users of accounting information needed information on these emerging issues for proper assessment of firms' performance. Accountability which financial results of companies communicate is an important aspect of their transparency that cannot be ignored; but financial results alone cannot communicate a company's social, environmental and sustainability impacts. These impacts are redefining the meaning of business value. Therefore, in order to improve the content of corporate reports, and respond to external pressures, firms are going outside the conventional reporting model to provide information on sustainability issues (Nwobu, Obiamaka & Adaeze, 2017).

Following the large number of corporate sustainability reports issued by firms around the world either as standalone report or as part of annual report, considerable research is conducted within the developed countries context and emerging economy on sustainability disclosures. There are significant number of research on determinants of sustainability

disclosures (Omaliko & Okpala, 2022; Handoyo, 2020; Nguyen & Nguyen, 2020; Eneh & Amakor, 2019; Kühn, Stiglbauer & Fifka, 2018; Onyali, Okoye, & Okerekeoti, 2017; Nwobu, 2017; Cho, Okuboyejo & Dickson, 2017; Shamil, Shaikh, Ho & Krishnan, 2014). Considerable literature also exists on the association between sustainability disclosures and firm performance (Aifuwa, 2020; Emeka-Nwokeji & Osisioma, 2019; Al Dhaimesh, 2019; Asuquo, Dada & Onyeogaziri, 2018). Studies on Governance, Media and Quality of Environmental Disclosure (Rupley, Brown, Marshall, 2012).

Also several studies have been done on the link between different aspect of corporate governance and sustainability disclosure (Moses et al. 2020; Saha & Kabra, 2020; Awodiran, 2019; King'ori, Naibei, Sang & Kipkosgei, 2019; Baba & Abdul-Manaf, 2017; Ganesan et al 2017; Mohammed, 2017; Shamil, et al 2014; Tamoi, Faizah, Mustaffa & Yussri, 2014; Michelon & Parbonetti, 2010). This study relates to this last category of academic discourse.

These studies under the last category of sustainability research generated mixed result on whether board structure has link with sustainability reporting (Rashid, Zoysa, Lodh, & Rudkin, 2010). While some studies found a positive association between board structure and sustainability disclosure others found a negative association between board structure and sustainability disclosure. Yet other studies found no link between board structure and sustainability disclosure. Thus despite the considerable advances in the practice of sustainability reporting; increase in theoretical argument on the benefit of such report; empirical literature on effectiveness of board in promoting ethical culture and responsible corporate disclosures; empirical literature from developed and emerging economy on influence of corporate governance on sustainability performance of firms, it is yet not clear from firms trading under listed building materials in Industrial goods sector of Nigerian stock exchange whether disclosing on sustainability reporting is being influenced by board of directors characteristics.

Therefore, this study examine of effect of board structure on sustainability disclosure of listed building material firms in Nigeria.

To this end, we formulated the following hypotheses to achieve the objective of this study.

H_{01}: Board members shareholding has not significant effect on sustainability disclosures of listed firms in Nigeria.

H_{02}: Board Independence has no significant effect on sustainability disclosures of listed firms in Nigeria.

H_{03}: Board Female Representation has no significant effect on sustainability disclosures of listed firms in Nigeria.

H_{04}: Board meeting has no significant effect on sustainability disclosure of listed firms in Nigeria

2. Review of Related Literature
2.1. Conceptual Review
2.1.1. Sustainability Reporting
According to Deegan and Rankin (2006), externalities caused by a business organization cannot be accurately measured, neither are they entirely recognized in financial accounting; also the likelihood of scarcity caused by resources used in the production process do not reflect in market prices of such resources. Consequently, financial accounting alone is inadequate to portray a holistic picture of organizational performance, except it takes cognizance of sustainability reporting. Also, Lozano (2008) proffers an integration view of sustainability; and argues that business organizations should consider social and environmental implications alongside economic impacts. This view has led to an evolving form of corporate reporting known as sustainability reporting.

Another perspective of sustainability is the notion of intergenerational-equity, which is a core principle required for the sustainable development of any company. This study does not intend to measure corporate sustainability from an international and/or inter-generational perspective, rather it measures sustainability reporting by observing the economic, environmental, social and governance indicators in annual reports and stand-alone sustainability reports, social responsibility reports and citizenship reports of companies. Sustainability report is a report that contains financial performance information and non-financial information that includes social and environmental activities that enable companies to grow sustainably (Omaliko & Okpala, 2022).

2.1.2. Board Structure
A vast body of literature on corporate governance demonstrates that boards of directors maintain firms' relationships with stakeholders, set firms' social agenda, provide valuable expertise and formulate strategy. The increasing pressure of regulators and powerful groups of stakeholders on firms to operate and manage in a socially responsible way has escalated the need of business engagement with communities and adopting sustainable development programs (Martensson and Westerburg, 2014; Yadav et al., 2016). Ngwakwe, Ganda, and Akinyomi (2014)

in recent times, board of directors have assumed an increasing dimension and diverse responsibilities (Finkelstein and Mooney, 2003). The key functions of the board of directors includes among others, managing, strategy formulation and service (Zahra and Pearce, 1989). The attainment of these roles usually relies on the composition of the board (Pearce and Zahra, 1992). Thus, the perception that the firm's board size and composition, hence its board characteristics are major factors which influence the company's performance to a greater extent (Zahra and Pearce, 1989; Pettigrew, 1992; Dalton et al., 1998).

For the purpose of this study, attributes of the board structure was measured by; Board Independence, Board Female representative or women on Board, Board Shareholding, and Board Meetings.

2.1.2.1. Board Independence as an Attribute:

The state in which all or a majority of the members of a board of directors do not have a relationship with the company except as directors. For example, they may not be relatives of the company's founders, key players or major employees. In the Nigeria, the SEC and individual exchanges require board independence. Board Independence is corporate governance concept that calls for a majority of board members to be independent from the company. Independence occurs when a board member has not been and is not currently employed by the company or its auditor and the board member's employer doesn't do a significant amount of business with the company. Each company creates its own definition of significant. Board independence was given legal definition and direction in 2002 in the Sarbanes-Oxley legislation. Boards with higher proportions of independent directors are expected to be more efficient in overseeing management activities and encouraging them toward long-term value maximizing activities and higher levels of transparency (Ahmed et al., 2006; Cheng and Courtenay, 2006).

2.1.2.2. Board Female Representation or Women on Board

Concept of gender diversity is always used to explain the proportion of men and women who occupy board member position. To measure gender diversity on corporate boards, studies often use the percentage of women holding corporate board seats and the percentage of companies with at least one woman on their board. One benefit of having female directors on the board is a greater diversity of viewpoints, which is purported to improve the quality of board deliberations, especially when complex issues are involved, because different perspectives can increase the amount of information available," the authors explain. Given that gender diversity on boards is an issue rooted in the principle of equality of treatment, inequality in gender representation on boards can be combated through equality of opportunity reforms, equality of outcome reforms, or spread of information on gender bias. Governments and corporations have attempted to address the disproportionality of gender representation on corporate boards through both types of reform measures, including legislation mandating gender quotas (a reform based on the principle of equality of outcome) and comply or explain guidelines (a reform based on the principle of equality of opportunity).

2.1.2.3. Board Shareholding

Directors typically (save for Independent Directors) are not precluded from holding shares in companies on whose Boards they serve. Indeed, some companies by their Articles of Association prescribe shareholding qualification for Directors. Section 251 (1) & (2) of the Companies and Allied Matters Act, 2004 (CAMA) provides a basis for this. Where so fixed, the Director is obliged by the provisions of CAMA to obtain his qualification within two months of appointment or vacate the office. In practice, most Directors are shareholders either in their personal capacity or as nominees of corporate shareholders. Many private companies are owner-managed businesses such that a majority if not all the shareholders also sit on the Board. Typically, Shareholder Agreements and indeed Articles of Association provide for "substantial shareholder" Board representation. Upon reaching a particular threshold (usually 5%) shareholders are invited to make nominations to the Board. There are arguments in support of the position that a Board made up predominantly of owner-Directors tends to be more hands-on, focused on corporate performance and delivering shareholder value. On the other hand, a more popular global perspective is that separating the role of ownership and governance engenders Board independence which is a *sine qua non* to delivering value to a wider spectrum of stakeholders and acting in the company's overall interest. Decisions would not always be influenced by investment objectives of the individual and institutional shareholders but will be better focused on considerations beyond the bottom-line.

2.1.2.4. Board Meetings

A board meeting is a formal periodic gathering of a Board of Directors. Most of the organizations, being public or private, profit or non-profit, are ultimately governed by a body commonly known as Board of Directors. The members of this body cyclically meet to discuss strategic matters. The Board of directors is

the supreme authority in a company and they have the powers to take all major actions and decisions for the company. The board is also responsible for managing the affairs of the whole company. In the case of a Public Limited Company, the first board meeting has to be held within the first 30 days, since the incorporation date. Additionally, a minimum of 4 board meetings must be held in a span of one year. Also, there cannot be a gap of more than 120 days between two meetings. It is at such meeting that key issues including that of sustainability are being discussed and decision on disclosures reached.

2.2. Theoretical Framework

2.2.1. Agency Theory

In general, the starting point for any corporate governance debate is the principal agent theory (Anthony & Biekpe, 2002). "Modern society and private property" by Berle and Means (1932), described in their classical research, is the theoretical basis of most research studies in governance. The agency's theory describes the most relevant agency issues in today's institutions, particularly since separation of ownership and control exist. Modern companies suffer from control and ownership separation, as they are managed by professionals who are not owners. Empirical evidence to explain both the nature of these agency problems and how to settle them has been documented by Jensen and Meckling's (1976) fundamental work through proposing the theory of the firm which is based on conflicts of interest among the stakeholders involved, equity holders, executives and debt holders. Empirically and theoretically, the finance theory has been developed to enable a thorough examination of the issues caused by the divergence of interests among business managers and equity owners. This view is consistent with the principle-agent paradigm. To this end, ensuring management considers shareholder interests of reducing costs related with the agent's conflict is a key issue.

Consequently, managers are faced with a number of issues: first, is how to select the appropriate professionals (managers). Second, is a moral hazard problem, which allows managers the proper incentives of making efforts and decisions that are aligned with equity holders' interests (Antonio & Biekpe, 2002). The theory of the agency justifies the propensity of advice dominated by outsider-dominated boards (Eisenhardt, 1989; Jensen & Meckling, 1976). Given that contemporary firms have separated ownership and control, it creates moral hazard problems among management and the owners. There is a likelihood that the former may exploit the information they have for their own selfish reasons that may result in damage of the owners' interests. In addition, the theory is in support of separating positions of the board chairperson and CEO or else agency costs become enhanced. Especially if the chairman controls the CEO, then the company experiences financial and market control (Balta, 2008). In corporate governance, the main disadvantage of agency theory is that it only focuses on the equity holders' goals, thus locking out other subjects in firm management and operation. This theory helps to determine the variables of the study, the organizational characteristics and structure of the board of the company due to the support of lean boards dominated from the outside and the theory of the property rights of the company. The theory is also relevant for studying the separation of control property and it also creates a conflict that can be managed through the structure of the board.

2.3. Empirical Review

2.3.1. Board Independence and Sustainability Reporting / Disclosures:

According to the Jordanian Corporate Governance code, the majority of the members of the board must be non-executive members and the number of independence members shall not be less than one-third of the members of the Board. Previous studies provide empirical evidence toexist positive relationship between the proportion of board independent and the level of environmental disclosure (Bajahar& Al-Hajili, 2017;Ieniu, 2012; Oba & Fodio, 2012; Htay et al, 2012).. On the other hand, Trieksani and Djajadikerta (2016) andMahmood, et al.(2018) stressed on the lack of relationship. Mohammed (2017) in a study examined the Influence of Board Composition on Sustainable Development disclosures, his results showed that higher board independence facilitates the conveying of firms' good citizenship image through enhancing societal conscience.

Michelon & Parbonetti (2010), in another study investigated into the effect of corporate governance on sustainability disclosure. The analysis of their study indicates that the presence of independent directors on the board is not per se positively associated with disclosure; moreover, independent directors become relevant in orienting sustainability disclosure strategy when they are community influentials. As community influentials are independent directors, they bring legitimacy to the company but they also require the company to disclose to stakeholders on the social and environmental impacts of the corporate activities.

Ngwakwe, Ganda, and Akinyomi (2014) examined the stance of independent directors on corporate sustainable development initiative in South Africa

and Nigeria. There analysis disclosed that independent boards in both countries of study understand the importance of sustainability; however a pragmatic stance on sustainability is more visible in South Africa where independent boards are members of and/or participate in nominating corporate sustainability committees. The paper suggests the need for improved detailed disclosure on sustainability in the Nigerian corporate annual reports; the Nigerian Stock Exchange may boost this initiative by establishing a social and environmental reporting index supported by an annual survey of company sustainability disclosure. It also suggests the need to include sustainability awareness and interest in the metrics that are used in the appointment of independent boards in Nigerian companies.

2.3.2. Board Female Representation and Sustainability Reporting / Disclosures

Modiba and Ngwakwe (2017) examined women on the corporate board of directors and corporate sustainability disclosure. Findings from the panel-data regression analysis of the study disclosed a positive relationship between the number of women on the board of directors and corporate disclosure on social investment and energy consumption. Further analysis also disclosed that women on the board of directors are related with the overall number of women employees in the company. The paper concludes that within the sample of companies, women on the board of directors may influence sustainability disclosure such as energy and social investment. Women on the board of directors might also assist the companies to achieve gender equity employment goals.

Oller and Martínez (2019) examined Gender policies on board of directors and sustainable development. Using the data from top Spanish listed companies, from 2003 to 2017, we test if the higher number of women on their board influences corporate social responsibility (CSR), through the disclosure of reports following the Global Reporting Initiative guidelines and the inclusion in the Dow Jones Sustainability Index. By using probit models and instrumental variable estimation to address endogeneity and reverse causality problems, we find that the female presence in management positions is positively linked to a voluntary disclosure of CSR reports and the inclusion in a sustainability index, which supports gender legislation.

2.3.3. Board shareholding and Sustainability Disclosures:

Director's shareholding according to Kurawa and Kabara (2014) refers to the proportion of a firm‟s shares owned by board members and other management staff. They noted that a high concentration of shares especially by managers tends to create an avenue for them to behave in ways that are value-maximizing. Following the same line of reasoning, Khan, Muttakin and Siddiqui, (2013) cited in Agustia, Dianawati and Indah, (2018) noted that managerial ownership allows managers to dominate the company and decide the strategies and policies the company will take. Below are some empirical literature that employed managerial ownership/Directors shareholding either as a corporate governance mechanism or board attribute (independent variable) to show their effect on specific sustainability disclosure, voluntary disclosures or corporate performance. In a more related study, Masud, Nurunnabi and Bae, (2018) ,examined the effect of corporate governance (CG) elements on environmental sustainability reporting using a cross country approach. The study revealed that director share ownership significantly relates with environmental sustainability reporting. In a similar study on the effect of corporate governance on corporate financial and market performance with sustainability reporting as intervening variable, Jouha, (2015), found positive effect of corporate governance as measured by managerial ownership on the Sustainability Reporting of sampled firms

2.3.4. Board Meeting and Sustainability Reporting / Disclosure:

Alotaibi, Aburuman and Hussien (2019) examined The Impact of Board Characteristics on the Level of Sustainability Practices Disclosure in Jordanian Commercial Banks Listed on the ASE. The summary of their analysis showed that Board's activity on the level of disclosure of sustainability practices is significant, where the value of t is (2.281) at a level of significance of (Prob = 0.024). Accordingly, there is an impact of the Boards' activity on the level of disclosure of the dimensions of sustainability at the Jordanian commercial banks.

Meibo and Lawrence (2018) also examined board governance and sustainability disclosure: a cross-sectional study of Sigapore-Listed Companies. Summary of their analysis showed that companies with larger board sizes and a higher number of board meetings are more likely to practice sustainability reporting, and their reporting quality are higher. Bell and Abdul-Manaf (2017) examined Board Governance Mechanisms and Sustainability Disclosure: A Moderating Role of Intellectual Capital. Summary of their study disclosed that board meeting was insignificantly related to sustainability disclosure. Rodríguez-Ariza, García-Sánchez and Frías-Aceituno (2012) examined the role of the board in achieving integrated financial and sustainability reporting. Joint analysis of the size and activity of the

board shows that the integration of corporate information benefits from the existence of a large board, whose directors have varied skills and experience. This facilities the monitoring of information and reduces the need for meetings to discuss this question.

3. Methodology

The study employed *ex-post facto* research design to investigate the effect of board structure on sustainability reporting of listed building material firms in the Industrial Goods Sector of Nigerian Stock Exchange. The justification for the ex post facto research design is because the research is conducted by analyzing past events of already existing conditions (sustainability disclosures and board structures). This study used secondary data that are disclosed in the annual report and website of the firms selected for the study covering a period of seven years from 2012 to 2018. The data was obtained from the annual reports of the sampled companies together with the use of Nigerian Stock Exchange (NSE) Fact Book in order to achieve the objectives of the study. The study population consists of all nine (9) listed building material firms in the Industrial Goods Sector of the Nigerian Stock Exchange as at 31st December 2018. The study covered a period of seven years (2012-2018). The secondary data collected was analyzed using descriptive statistics, correlation analysis, and regression analysis. However, other diagnostic test was conducted to confirm the assumptions of regression. Multiple regression analysis was used to evaluate the effect of the independent variables on the dependent variables. The result reveals the degree of influence and the level of significance. The Pooled Ordinary Least Squares (OLS) estimation technique was employed in the analysis of data. All hypotheses were tested at 0.05% significance level. However, all analyses, both descriptive and inferential statistics was done via STATA 13.0 statistical software.

3.1. Operationalization and Measurement of Variables

Table 1: Measurement for Dependent Variable

Variable	Measurement
Dependent	
Sustainability Disclosure	SDI: Sustainability Disclosure Index was computed as the ratio of the actual scores obtain by a firm divided by the maximum score three.
Independent	
Board Independence	BODIND: Proportion of non-executive directors to total directors
Board Female Representative	BOFREP: Proportion of Female to Numbers of Directors
Board Ownership/Director Shareholding	BODSH: Measured as Directors Shares/Outstanding Shares
Board Meeting	BOMET = Measured as Number of times that the Board met during a financial year
Control	
Firm Size	Measured as log of total Assets
Firm Age	Measured as Number of years listed on the Nigerian Stock Exchange
Leverage	Measured as Total Liabilities divided by total assets

Source: Empirical Survey (2023)

3.2. Model Specification and Justification

In an attempt to adequately and empirically analyze the effect of Board Structure on sustainability disclosures of listed industrial goods firms in Nigeria, the study formulated multiple regression model from prior empirical work and perceived theoretical relationship among the variables to help in testing the hypotheses of the study. The multiple regression model used was adapted from the work of Ahmad, Rashid and Gow (2017).

$$CSRI_{it} = \alpha_0 + \beta_1 CEOD_{it} + \beta_2 BIND_{it} + \beta_3 DIROWN_{it} + \beta_4 CEOFOUNDER_{it} + \beta_5 CEOTENURE_{it} + \beta_6 DR_{it} + \beta_7 LIO_{it} + \beta_8 AGE_{it}$$
$$+ \beta_9 SIZE_{it} + \beta_{10} ROA_{it} + \beta_{11} GROWTH_{it} + \beta_{12} CAP_{it} + \varepsilon_{it}$$

The model was specified in line with the specific objectives and hypotheses of the study as follows:

The Econometric form of the model is indicated below:

$$SDI_{it} = \alpha_0 + \beta_1 BODSH_{it} + \beta_2 BODIND_{it} + \beta_3 BOFREP_{it} + \beta_4 BOMET_{it} + \beta_5 FSIZE_{it} + \beta_6 FAGE_{it} + \beta_7 DETA_{it} + \varepsilon_{it}$$

Where:
SDI = Sustainability Disclosure Index
BODSH = Board Shareholding
BODIND = Board Independence
BOFREP = Board Female Representation
BOMET = Board Meeting
FSIZE = Firm Size
FAGE = Firm Age
DETA = Firm Leverage
β_0 = Intercept estimates
β_{1-7} = Coefficient of the independent variables
e = error term

Decision Rule: accept Ho if P-value > 1% or 5% significant level otherwise reject Ho

4. Data Analysis and Results

Table 1: Descriptive Statistics

stats		sdi	bodsh	bodind	bodfrep	bomet	fsiz	deta	fage
mean		.3333333	.2300419	68.21339	.0150484	5.016667	7.022419	54.38	22.45161
min		0	0	0	.0003	3	5.4	4.1	3
max		1	.9703	94.44	.1165	10	9.23	150.24	45
sd		.3519397	.3047783	18.51928	.023403	1.371522	1.1144	24.60355	13.61132
N		62	62	62	62	60	62	62	62

Table 1 above provides some insight into the nature of the selected firms' data used for the study. Firstly, it was observed that for the period under review, that the sampled companies have a positive average sustainability disclosure index sdi of 0.3333333. Some firms in the building material sub sector didn't disclose on any of the three component of sustainability disclosures that is why the min value of sdi is zero. Also the maximum director shareholding (bodsh) stood at 97% while its minimum shareholding is zero connoting that among the sampled companies under the building materials and during the period of study some independent directors don't have share of the companies they are directing. The statistics showed that on the average most of the independent directors had its company's share to the tone of 23%. The result of board independence reveals that 68% of the sampled firms had more independent directors than dependent directors in their board. This again is a good fit as this could mean that listed firms in Nigeria are meeting up with global best practice and consequently benefit from the inherent advantages. The statistics for gender diversity shows that on the average some companies has at least one female member. The zero minimum value for board gender diversity also shows that on the average some companies do not have any female representation in its board. The sampled firms has a maximum number of 11 female representative in their board The variable of board meeting (bomet) showed that on the average that the board of the sampled firms met 5 times annually during the period studied.

Table 2 Normality /Test

Skewness/Kurtosis tests for Normality

				------- joint ------	
Variable	**Obs**	**Pr(Skewness)**	**Pr(Kurtosis)**	**adj chi2(2)**	**Prob>chi2**
sdi	62	0.0073	0.4997	6.94	0.0311
bodsh	62	0.0012	0.4316	9.49	0.0087
bodind	62	0.0004	0.0243	14.15	0.0008
bodfrep	62	0.0000	0.0000	36.57	0.0000
bomet	60	0.0003	0.0182	14.56	0.0007
fsiz	62	0.0278	0.2315	5.91	0.0520
deta	62	0.0001	0.0041	17.49	0.0002
fage	62	0.8319	0.0000	27.51	0.0000

From the the Nomality Test in Table 2 above, all the variables of interest sustainability disclosure index board shareholding, board independence; board female representative, board meeting (diligence) are normally

distributed and satisfies the test of significance at 1% and 5% level of significance. Overall, the statistics revealed that there is no sample selection bias or outlier in the data that would impair the generalization from this study.

Table 3: Correlation Matrix

	sdi	bodsh	bodind	bodfrep	bomet	fsiz	deta	fage
sdi	1.0000							
bodsh	-0.1951	1.0000						
bodind	0.2743	-0.0829	1.0000					
bodfrep	-0.3171	0.1197	-0.0984	1.0000				
bomet	0.3231	-0.1410	-0.0613	-0.2374	1.0000			
fsiz	0.6059	0.0025	0.2520	-0.5827	0.2629	1.0000		
deta	-0.2507	-0.1481	0.1407	0.5249	-0.1658	-0.4550	1.0000	
fage	0.3878	-0.2961	0.3286	-0.0876	0.0534	-0.0328	0.0587	1.0000

Table 3 above shows that board independence, board number of meeting/diligence, firm size and firm age showed a positive correlation with the variable of sustainability disclosures while the other three independent variables board of directors shareholding (bodsh) and board female representative and Leverage showed a negative correlation with the variable of sustainability disclosures. Also the control variable firm size measured by log of total assets has strong negative association with board female representative which indicate that larger firms has lesser female representative. Leverage have strong positive association with board female representative which indications that high leveraged firms have higher number of female on board.

4.1. Test of Hypotheses

Table 4: Regression Result

Source	**SS**	**df**	**MS**	**Number of obs = 60**
				F(7, 52) = 10.03
Model	4.02044573	7	.57434939	Prob > F = 0.0000
Residual	2.97770247	52	.057263509	R-squared = 0.5745
				Adj R-squared = 0.5172
Total	6.9981482	59	.118612681	Root MSE = .2393

sdi	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf. Interval]**	
bodsh	-.0990177	.1102672	-0.90	0.373	-.3202851	.1222497
bodind	.0001811	.002247	0.08	0.936	-.0043279	.00469
bodfrep	2.546353	1.791958	1.42	0.161	-1.049473	6.142178
bomet	.0378203	.0242103	1.56	0.124	-.0107613	.0864019
fsiz	.203205	.0387288	5.25	0.000	.12549	.2809201
deta	-.0008025	.0016222	-0.49	0.623	-.0040576	.0024527
fage	.010013	.0026126	3.83	0.000	.0047705	.0152555
_cons	-1.489056	.3140125	-4.74	0.000	-2.119168	-.8589436

From the Regression Result in table 4 above, the study observed from the result that the R. squared value is 0.574 (57%) and R-squared (adj) .517 (52%). This indicates that all the board attributes jointly explain about 51% of the variation in sustainability disclosures of the sampled firms. Thus about (52%) of the sustainability disclosures of the sampled industrial goods firms in Nigeria can be attributable to board attributes. The coefficient of determination (adjusted R^2) measures the strength of the relationships between the dependent variable and the predictors in the prediction model by indicating the proportion of the variance in the dependent variable statistically explained by the independent variables in the regression model. Result of the study from the table above also indicates that the F-statistics value is 14.51 and its probability value is 0.000. This shows that model formulated is appropriate hence the model used for the analysis is appropriate and statistically significant at 1% levels. The above regression result is subjected to diagnostic test to determine the suitability of the result for final interpretation of the independent variables.

4.2. Discussion of Findings

In addition to the above, the specific results for each explanatory variable from the panel least square

model as shown in Table 4 are provided below as follows:

Hypothesis One: Board shareholding has no significant effect on sustainability disclosures.

The regression result in table 4 above is used in testing hypothesis one. The t-values of the variable board shareholding (bodsh) - 0.90 with the respective p-values 0.373 are indications that board shareholding is negative and statistically insignificant in explaining sustainability disclosures. Based on the analysis result, the study rejects the alternative hypothesis and accepts the null hypothesis. The study therefore concludes that Board shareholding has negative and insignificant effect on sustainability disclosures of firms in building material sub.sector of Industrial Goods in the Nigerian Stock Exchange.

Hypothesis Two: Board independence has no significant effect on Sustainability disclosures.

From the regression result in table 4 above, the t-values of the variable board independence (bodind) 0.08 with the respective p-values 0.936 showed that board independence is positive but statistically insignificant in explaining sustainability disclosures. Based on the analysis result, the study rejects the alternative hypothesis and accepts the null hypothesis. The study therefore concludes that Board Independence has positive but insignificant effect on sustainability disclosures of firms in building materials sub-sector of Nigerian Stock Exchange.

Hypothesis Three: Board Female Representation has no significant effect on sustainability disclosures of listed firms in Nigeria.

From the regression result in table 4 above, the t-value of the variable board female representation (bodfrep) 1.42 with the respective p-value 0.161 showed that board female representation is positive but statistically insignificant in explaining sustainability disclosures. Based on the analysis result, the study rejects the alternative hypothesis and accepts the null hypothesis. The study therefore concludes that board female representation has no significant effect on sustainability disclosures of firms in building materials sub-sector of Nigerian Stock Exchange.

Hypothesis Four: Board meeting has no significant effect on sustainability disclosure of listed firms in Nigeria.

From the regression result in table 4 above, the t-value of the variable board meetings (bomet) 1.56 with the respective p-value 0.124 showed that board meeting is positive but statistically insignificant in explaining sustainability disclosures. Based on the analysis result, the study rejects the alternative hypothesis and accepts the null hypothesis. The study therefore concludes that board meetings have no significant effect on sustainability disclosures of firms in building materials sub-sector of Nigerian Stock Exchange.

5. Conclusion

The study also provides insights into board attributes of listed building material firms in Nigeria. The study provides evidence for firms and policy-makers on how sustainability disclosures of listed firms in Nigeria can be improved through robust corporate board. Specifically, the study provides an avenue for firms to identify corporate board attributes that are vital in increasing their sustainability reporting practices. Though sustainability disclosure is relatively new and voluntary in Nigeria, sampled firms undertake sustainability disclosure despite its voluntary nature, practice moderates the relationship between firms attributes and corporate performance.

5.1. Recommendation

In the light of the of findings of the study, the following recommendations were made;

A. Regulators and policy makers should encourage firms' directors that are owners to ensure that their position does not discourage the need for accountability to other shareholders so that sustainability disclosure is improved.

B. The presence of outside directors was positive in improving firms' sustainability disclosures. Firms should increase representation of independent directors' as their monitoring and their greater knowledge of the firms' activities can influence sustainability disclosures.

C. The study highlights the need to consider female board of directors when appointing firms board members. There should be policies that require firms to nominate women as board members. Their presence should equally be considered by investors and other stakeholders as female board members favour greater orientation towards stakeholders and social issues by influencing disclosures on sustainability activities.

D. Considering that directors' communication through frequent board meetings have positive influence on sustainability reporting; also that frequency of board meeting reflects the diligence and vigilance of corporate board towards corporate transparency, regulators and policy makers should consider standardizing number of meeting for corporate board of directors.

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